Editors’ Introduction

The following reminiscence by Jim Powers is the fifteenth autobiography in a series published in the Journal of Neuropathology and Experimental Neurology. These have been solicited from senior members of the neuropathology community who have been noted leaders and contributors to neuroscience and to the American Association of Neuropathologists (AANP) and have a historical perspective of the importance of neuropathology in diagnosis, education, and research. We hope that this series will entertain, enlighten, and present members of the AANP with a better sense of the legacy that we have inherited, as well as reintroduce our respected neuroscientists as humans having interesting lives filled with joys and sorrows and allowing them to present their lives in their own words.

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I had the good fortune to be raised in New York City (NYC) by 2 wonderful people. My mother, Margaret Gunther, had been a Registered Nurse, and my father, Alfred Powers, was a branch manager for the pharmaceutical company, E.R. Squibb and Sons (Fig. 1A). It has always been my families, both personal (Fig. 1B) and professional, that have had the greatest impact on my life. Lively, often heated, discussions regarding all topics were commonplace at supper time. An Irish background, combined with public speaking courses in both Catholic high school and college, endowed me with good lecturing skills and, perhaps, to sound more intelligent than I am. Most importantly, my parents gave me the love and support needed to develop self-confidence and a healthy self-worth that would allow me to make unconventional decisions at future academic crossroads. NYC inoculated me against almost any surprise or “evil” and infused me with “street smarts” (the need for personal responsibility and survival skills). My high school (Cathedral Preparatory Seminary) and college (Manhattan) experiences also provided me with good study habits and a strong basis in critical scientific reasoning, respectively. A long list of authors also had a profound effect on my thinking and living: Albert Camus, Shakespeare, Lewis Thomas, and Santiago Ramon y Cajal.

In the summers between my sophomore and junior years at Manhattan, in order to gain some practical medical experience, I volunteered to rotate through the anatomic/clinical pathology (AP/CP) laboratories in the Institute of Pathology of Downstate Medical Center/Kings County Hospital in Brooklyn. Serendipity intervened when Walter Kane, a Manhattan alumnus, offered me the alternative opportunity to perform several laboratory experiments related to his research. He had just graduated summa cum laude from Downstate Medical School. Walter was brilliant, generous and always displayed incredible patience with my questions. He would not answer my specific question, but would provide a daily lecture on its background and implications. I believe that many of us choose our medical fields because of a favorable initial exposure or a family-related disease. Walter Kane clearly provided that initial spark, but it would take one additional (and most unlikely) person to ignite my decision-making fire.

Walter was the protégé of the head of the Institute of Pathology, Gordon Ross Hennigar, Jr., the second major influence in my medical life. Hennigar had accepted the Chair of Pathology at The Medical College of South Carolina in Charleston in 1964, when I was applying to medical school. Hennigar offered me admittance to his new medical school. His offer represented my first professional crossroad. Who would dare to move at the age of 22 from NYC in 1965, the centennial of the end of the Civil War (often referred to by southerners as the “War of Northern Aggression”), to Charleston, South Carolina, the birthplace of that war? I can still remember standing in the street, looking at the multilevel hospital and research buildings (both fairly new and red brick), as well as the old 3-story dilapidated medical school, and questioning the wisdom of this consideration. Both Kane and Hennigar had been good to me, so I decided to take a chance and started medical school in Charleston. Looking back on that decision several years ago, I realized what a huge, perhaps even foolish, gamble that was. Walter never came south, and I don’t believe the research studies were ever completed. However, Hennigar became my academic mother and taught me Anatomic Pathology, in particular of the adrenal gland, which would be critical 2 years later. He was an exceptional morphologist and diagnostician, particularly of kidney, liver, endocrine organs, and environmental medicine (e.g. drug reactions). He believed strongly that pathologists are diagnosticians, who make pathologic diagnoses and don’t settle on “consistent with . . .” He taught me that morphology was a valid path to understanding disease mechanisms (pathogenesis) by asking “why?” and “how?” when looking at slides. He also was the first “character” (i.e. a distinctly different type of person) to enter my medical life. He had a great sense of humor, was a superb storyteller, loved his bourbon, and was thoroughly disinterested in what anyone thought or thought of
him. Each afternoon, after he had signed out his biopsies, he would invite several of us to his conference room for a “titch” (alcoholic beverage). During these encounters he would tell stories, sometimes true, and dispense advice. He had incredible insight and knew whom he could physically or mentally “bully.” And yet he was highly protective of his residents, because they were considered part of his family. The concept of academic families is one of the legacies that Hennigar bequeathed to me. He also had the good sense to recognize that electron microscopy would be the future of Pathology. Consequently, he enrolled me in an electron microscopy course in Charleston that began a few days after I graduated from Manhattan College. This course was taught by William Dougherty, PhD, a bright new faculty member who was an excellent teacher of ultrastructure and an indispensable consultant in my AP residency. Hennigar permitted me to spend most of my second postgraduate year being responsible for a diagnostic electron microscopy laboratory. What an exceptional learning opportunity that would be. He taught me all the human adrenal pathology that he knew; he also allowed me to study the effects of a chemotherapeutic toxin, DDD, on dog adrenal cortex with the light and electron microscopes.

The basic science years at the Medical College were weak. I never took notes or looked at old exams, but always attended classes. I learned an enormous amount in those basic science years, largely because I had decided to read the textbooks for each course. The clinical years, on the other hand, and some of its faculty were quite good. One of those clinical faculty members was another “character” named Tom Fitts, a general surgeon who later specialized in renal transplants (starting the first program in SC in 1968) and endocrine surgery. I came to know Tom on my first general surgery rotation and, in spite of marked differences in our backgrounds and ages, we developed a deep friendship that ended on November 4, 2008, when he died at the age of 76. Tom turned out to be that additional decision-making factor mentioned above. I was seriously considering pathology. However, being of that age when psychology and philosophy can dominate one’s thoughts, psychiatry became a candidate. (In 1967, only psychotherapy and electroshock were the common treatments available.) That is, until Tom, born in Tennessee but schooled elsewhere (Princeton University and the University of Pennsylvania), questioned the efficacy of psychotherapy in patients who were often out of touch with reality. At that moment, the fusion of Pathology and brain disease took place. Neuropathology was the only natural path for me to pursue.

In spite of how generous Hennigar was, he lacked the ability to be critical with me. Because of my precocious knowledge of adrenal and ultrastructural pathology, I was developing that “Big frog in a little pond” mentality that, I believe, can be intellectually lethal when you’re young. Hence, I felt the need for a critical environment and decided to apply for a neuropathology training position at Albert Einstein College of Medicine, arguably the best in the world, largely because it was Jewish and in NYC. I bid farewell to many good friends in Charleston, being grateful for the experience of living in a different society, but also bemoaning the lack of excellence in the medical school and vowing never to return.

I began my neuropathology training at Einstein quite unsure of myself, because I was well aware of the Peter Principle: “... rise to his level of incompetence.” My fears turned out to be unfounded, and I experienced the most productive, enjoyable, and fulfilling 2 years of my academic life. The strength and diversity of the neurosciences and cell biology in that “golden era” of Einstein were phenomenal. Giants strode the halls of the Kennedy and Forsheimer buildings. It was the
most scientifically honest and most critical institution that I have ever encountered. For the neurosciences, it began with the visionary neurologist/neurochemist Saul Korey from whom Bob Terry descended. One learned quickly not to speak, unless you had the data to back up your words. Einstein epitomized the words of Francis Crick spoken during a BBC interview: “A good scientist values criticism almost higher than friendship; no, in science criticism is the height and measure of friendship.” And, also, those of Cajal: “Only in contest with the strong does one acquire strength... besides criticism is absolutely necessary.”

The neuropathology group, when I arrived, consisted of at least twenty professionals: Residents, postdocs, clinical, and research faculty from all over the world. Led by Bob Terry, the other luminaries included Kinuko Suzuki (Japan), Khalid Iqbal (India), Peter Spencer (England), Dikran Horoupian (The World), Henryk Wisniewski (Poland), Cedric Raine (England), Steve Brostoff (US), Dino Ghetti (Italy), and Herb Schaumburg (US). Mauro Dal Canto (Italy) would join us next year.

I found Bob Terry to be, in some sense, the mirror image of Gordon Hennigar, but realized how much I could benefit from trying to emulate their strong points and avoid their weaknesses. My generation actively selected such individuals as “role models,” in contrast to the current generation’s more passive reception of “mentors” in its academic development. I believe that Henryk was close to or was an experimental genius. When teamed with the solid scientist, Ced, and the intuitive critic, Bob, they were a “dream team.” All were excellent morphologists, particularly of ultrastructural pathology. At Einstein, no one pressured you to do research projects or publish papers, but everyone was doing just that. The environment was infectious! One also quickly learned that the most appropriate place to present one’s findings was at the annual meeting of the American Association of Neuropathologists (AANP) and to publish your papers in its journal, the Journal of Neuropathology and Experimental Neurology (Fig. 2). Bob invited me to do my research project on the amyloid of Alzheimer disease with Henryk and him, which unfortunately was fatally flawed conceptually from the start. This shortcoming did not become obvious, however, for 4 years. Nevertheless, it was Bob who set the bar high at “The” Einstein and demanded perfection from all, the classical father figure (Fig. 3).

Another “character,” Herb Schaumburg, would have the greatest effect on my investigative career, because he serendipitously introduced me to the medical love of my life. Herb had been a neurologist at Einstein for 6 years before going to Massachusetts General Hospital for a 2-year fellowship in Neuropathology with the legendary Raymond Adams and E. P. Richardson, Jr. (Bob Terry never forgave him for this, but also never discouraged my working with Herb.) Herb had just returned to Einstein in 1971 and was one of my attendings. My romance with adreno-leukodystrophy (ALD) began as a casual encounter with Herb in a hallway. I mentioned that I had done some experimental work on the adrenal, so he offered to show me some adrenals from boys who died of “Schilder’s disease.” My recognition of the striations in the cytoplasm of cortical cells as unique set a change of mind-set in motion. While our mutually beneficial meeting was clearly serendipitous, it also confirmed the words of Louis Pasteur: “Chance favors the prepared mind.” It was again serendipitous that in an adrenal biopsy, a twig of peripheral nerve was present in the adrenal capsule. The ultrastructural recognition of the same abnormal lamellae in both adrenocortical and Schwann cells provided the first morphologic link between the nervous and endocrine systems in ALD.

Herb also taught me how to write a scientific paper, in contrast to the beautiful prose I was taught by the good sisters, priests and brothers in the past. I learned this style, and we regularly revised and revised (5 or 6 was common). Whatever scientific writing skills I might have are due largely to Herb. He also impressed on me the importance of correlative neuropathologic diagnoses, as contrasted with pure morphologic diagnoses. Additionally, he was the biggest “character” of all. He was, and still is, hilarious.

My 2 years of neuropathology training were close to ending, and I needed to find an academic position. Hennigar wanted me to return to Charleston and work with Doug Balentine. When I visited, I saw much growth had occurred in those 2 years, with many national and even international additions. In particular, Ed Hogan had come down from Chapel Hill to become the Chair of Neurology. Ed was also a neurochemist interested in myelin, and had begun to assemble an excellent experimental myelin group led by Steve Brostoff. With this
critical mass in myelin research and my confidence in Hennigar, I decided to return to Charleston. Dom Purpura, one of the brightest scientists and perhaps the best extemporaneous speaker I’ve ever met, was a neurophysiologist of international caliber and the editor of *Brain Research*. He offered me a post-doc position to study brains of mentally retarded children, including with the Golgi stain. This was a great opportunity, and I even briefly considered a PhD degree. However, I had 2 young children and needed to earn a decent salary, so I declined his offer, too. When I told him that I was returning to Charleston, he exclaimed: “Charleston… that’s the end of the earth!”

I had arrived at another crossroad and, with a leap of faith, had again chosen the least traveled (and least likely to lead to professional success) road. I left Einstein physically, but not intellectually or emotionally. While there, the seeds of deep collaborations and friendships were planted, particularly with Dik Horoupian, Ced Raine, and Bob Terry. One of Bob’s parting advices to me was: “Learn to say no, so you have the time to develop a research career.”

After “eating crow” for a few months, things went well. Hennigar protected my time to develop an investigative career by limiting my administrative assignments to one per year. I continued to work with Herb and company on ALD and adrenomyeloneuropathy (AMN). I established collaborations with Steve Brostoff and his group. I also submitted a grant to the VA, where I had a 50% effort position, to study in mice that fatally flawed hypothesis generated by Henryk on brain amyloid. It would be the only grant that I would ever submit as principal investigator. The VA gave me $50,000 for 2 years, and I disproved our original hypothesis.

The next professional crossroad I encountered was whether to choose basic research as my investigative focus and continue to apply for grants. I didn’t take that road, which has traditionally been the one that leads to academic success, at least in the United States. I’m not sure why I took the other road: Clinical research. There are several possible reasons. First, when I left Einstein, I was told that the chances of being satisfied with the Medical University. I had thought a Baylor offer that I declined for personal reasons was my last opportunity to move to an excellent medical center. That was 1980, that I began a long and most productive collaboration with Hugo Moser and his wife, Ann (Fig. 4). Hugo was one of the most intelligent, well-read, kindest and productive physicians I’ve ever known. My decision to forego my concurrent amyloid investigations in 1988 for ALD brought unanticipated benefits. Once ALD was identified as a disorder of peroxisomes, my and Hugo’s ALD world expanded to include all peroxosomal disorders. To understand the leukodystrophy of ALD, I needed to learn the neuropathology and pathogenesis of other leukodystrophies. Thus, my decision to focus on ALD unwittingly opened up 2 new areas of investigation: (1) peroxisomes and their disorders, and (2) white matter disorders, particularly the genetic leukodystrophies. The latter led to my close association as a Medical Board member with the United Leukodystrophy Foundation (ULF)—a truly rewarding personal experience. Serendipity strikes again!

Doug Balentine, the Chief of Neuropathology, involved me in the administrative arm of the AANP as Assistant Secretary-Treasurer in 1976 (Fig. 5). This association with the AANP expanded over the years, to where I was on Executive Council for many years and served as every officer, including Secretary-Treasurer and President. The AANP, like Einstein, has been a professional family that has provided me with countless academic and social benefits, to a large extent because of its diversity and international flavor. Those seeds of friendship with Dik, Ced, Dino, and Bob at Einstein would not have come to fruition without the nourishment provided by a small, social organization like the AANP and its annual meetings. Additionally, it allowed me to meet countless new people and develop more strong friendships with Mike Hart, Sam Ludwin, Sue Mirra, Clive Harper, to name a few. Even though Hennigar and Doug Balentine were most supportive, I never was satisfied with the Medical University. I had thought a Baylor offer that I declined for personal reasons was my last opportunity to move to an excellent medical center. That was until 1987, when Mike Shelanski, the newly appointed Chair of Pathology at Columbia, called.

Mike agreed to hold the position for one year so my son could finish high school in Charleston, as long as I gave my word that I would come. In many ways Columbia was a...
“perfect fit” for me: The large and diverse departments of Neurology and Neurosurgery had many different neuropathologic needs, while I had 15 years’ experience and a broad expertise in clinical neuropathology. I would inherit a large division of Neuropathology, comparable to Baylor’s, to help fulfill these multiple missions. I wasn’t sure if I wanted to live around NYC again, and Mike couldn’t be specific about the neuropathology facilities. So, I accepted Mike’s offer with the stipulation that I would give it 2 years. We became good friends, and I made many more in Neurology, Neurosurgery, and Pathology. Once again, I was in an institution where giants strode the halls. Columbia also had a palpable academic ambiance similar to that of Einstein. However, when I returned to NYC in 1988 and began my tenure as Chief of Neuropathology, I was surprised to find that clinical medicine in NYC had not kept pace with clinical medicine elsewhere or basic research in NYC. Part of the problem was the massive drain of health resources in NYC from AIDS. I was able to reestablish the credibility of its Neuropathology Division within about 14 months and had re-established a mutually beneficial relationship with Adult Neurology, Child Neurology, and Neurosurgery—particularly their leaders: Bud Rowland, Darryl DeVivo, and Ben Stein, respectively. In spite of incredible support from all parties, I informed Mike that I was leaving at 26 months. I was leaving for several reasons. The two most important were: The population density and congestion of NYC (i.e. personal) and my fear that I would not have the time to do my clinical research, the spice of my academic life (i.e. professional). For me, Columbia-Presbyterian had been both the best of times and the worst of times. However, I burned no bridges, and many friendships made at Columbia are still alive and well today. When I made the decision to leave, only 2 good Chief of Neuropathology positions were available: Pittsburgh and Rochester.

Even though I left extraordinary and supportive neuroscience at Columbia to go to excellent neuroscience at the University of Rochester—Strong Memorial Hospital (UR/SMH), it was the right move for me. It is the only place that I have lived in my adult life where I’ve had both high-quality personal and professional lives. Here, I was able to achieve all my academic goals, and the Medical Center expressed its appreciation in several ways—for which I am most grateful. While I was there the AANP asked me to give its prestigious Korey Lecture. In 2007, the AANP awarded me its lifetime achievement award for “Meritorious Contributions to Neuropathology” (Fig. 6), and the medical school graduating class of 2007 asked me to be their Faculty Speaker at graduation. My academic success at UR/SMH has been largely dependent on additional collaborations with Marjo van der Knaap in Amsterdam, Kirby Smith at the Kennedy-Krieger Institute and my loyal, talented and industrious staff, particularly my secretaries/administrative assistant: Linda Crandall and Tina Blazey.
(Fig. 7). I learned early in my academic life that it would be very difficult to be productive without proper support services.

The English proverb states: All good things must come to an end. Following my 65th birthday in September, 2008, I retired on December 1st—a decision that was inconceivable to me 15 years previously. The responses to my announcement were mixed. Most had asked: “Why now?” and “What are you going to do?”

Many have told me that I “tell it like it is.” Would that were so, but the truth is that I have always called it like I see it. Consequently, I would like to finish the story of my career (i.e. over there) in this way. Our world has undergone dramatic changes since I began my crooked trail—some for the better, perhaps more for the worse. The technological and medical advances have been awesome, but at the same time a perceived need for unnecessary and wasteful documentation, such as the “core curriculum,” has invaded academic medicine. When I was growing up, my generation was urged to be the best it could be; the current generation is told to be whatever it wants to be. In this delusional era of equality, I sensed a movement afoot in US Medicine to make all things the same. For me, uniformity breeds mediocrity.

After a most enjoyable and satisfying academic career in neuropathology (so much so that I never took my full vacations) for ~20–25 years, I found the last 10–15 or so to be an increasingly wasteful experience. My lack of patience for wasting time in performing inane bureaucratic and mindless academic regulatory or politically correct obligations, led me to walk away from it all. Do I regret my decision? Do I miss it? No. And yes, some of it: The diagnostic challenges, the discoveries of clinical research, and the personal contact of teaching. However, it has given me the freedom to pursue other activities. These included: Spending quality time with my son, Conor, throughout high school, in which he played Varsity and AAU basketball and Varsity football, riding bikes with a small cadre of retirees in Victor, New York (Fig. 8), and traveling the world usually with Clive Harper, his wife Therese, and Ced Raine (Key West in 2009, Greece and Turkey with Mike Hart in 2010, Costa Rica in 2011, Alaska in 2012, Southwest US in 2013, South America in 2014, South Africa in 2015, France and Switzerland in 2016, and the western national parks in 2017). Our southwestern trip allowed us to meet up with Dik and spend a day with Bob Terry near San Diego, the last time we saw him. In 2016, I also took Conor to Lisbon, Spain, Ireland, and London for his 21st birthday.

This year I finally and truly retired by moving to a waterfront-golf retirement community outside of New Bern, NC, a charming historic city at the confluence of the Neuse and Trent rivers. The immediate future should bring a boat, perhaps golf. Conor’s graduation from Boston College (Fig. 9), and grandchildren’s birthdays and sporting events. In spite of several serious accidents resulting in traumatic damage to multiple joints, I am still vertical, ride my bike 10–15 miles every other day, and possess all my original factory parts (plus an odontoid screw). Life goes on, even after you’re gone.

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REFERENCES